Surinamite  
(Mg, Fe\(^{2+}\))\(_3\)Al\(_4\)BeSi\(_3\)O\(_{16}\)

Crystal Data:  
Monoclinic.  
Point Group:  
2/m.  
As small crystals, platy  
∥ {010}, to 0.2 mm.

Physical Properties:  
Cleavage:  
One well-developed  
⊥ {010}.  
Hardness = n.d.
D(meas.) = >3.3  
D(calc.) = 3.58

Optical Properties:  
Transparent.  
Color:  
Dark blue, blue-green.
Optical Class:  
Biaxial (-).  
Pleochroism:  
Y = violet;  
∥ to cleavage = bright blue-green;  
⊥ to cleavage = very light greenish brown to colorless.  
Orientation:  
Y = b.  
Dispersion:  
Very strong.
\(\alpha = 1.738\)  
\(\beta = 1.743\)  
\(\gamma = 1.746\)  
2V(meas.) = 67°–68°

Cell Data:  
Space Group:  
P2\(_1\)/n.  
\(a = 9.916(1)\)  
\(b = 11.384(1)\)  
\(c = 9.631(1)\)
\(\beta = 109.30(1)^\circ\)  
\(Z = 4\)

X-ray Powder Pattern:  
Bakhuis Mountains, Surinam; closely resembles sapphirine.
2.435 (100), 1.99 (100), 1.420 (80), 7.05 (60), 2.91 (60), 1.432 (60), 1.411 (60)

Chemistry:  

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SiO(_2)</td>
<td>33.1</td>
<td>32.3</td>
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<tr>
<td>TiO(_2)</td>
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<tr>
<td>Al(_2)O(_3)</td>
<td>34.9</td>
<td>34.3</td>
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<tr>
<td>FeO</td>
<td>12.25</td>
<td>10.8</td>
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<tr>
<td>MnO</td>
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<td>0.7</td>
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<tr>
<td>ZnO</td>
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<tr>
<td>BeO</td>
<td>n.d.</td>
<td>[4.5]</td>
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<tr>
<td>MgO</td>
<td>16.45</td>
<td>17.3</td>
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<tr>
<td>CaO</td>
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<td>0.0</td>
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<tr>
<td>F</td>
<td>0.05</td>
<td></td>
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<tr>
<td>Total</td>
<td>[97.95]</td>
<td>[99.9]</td>
</tr>
</tbody>
</table>

(1) Bakhuis Mountains, Surinam; by electron microprobe, original total given as 97.85%; BeO ~4% inferred from later analyses. (2) Chimwala area, Zambia; BeO assumed, then corresponding to \(\text{Mg}_{2.39}\text{Fe}_{0.55}\text{Mn}_{0.06}\text{Si}_{1.2}O_{16}\); \(\text{Al}_{3.74}\text{Fe}_{0.28}\text{Si}_{1.2}O_{16}\).

Occurrence:  
In mylonitic mesoperthite gneiss, probably formed during high-pressure granulite facies metamorphism of aluminous rocks (Bakhuis Mountains, Surinam); in sillimanite-rich segregations in pegmatites (Casey Bay, Antarctica); as pseudomorphs after cordierite (Chimwala area, Zambia).

Association:  
Biotite, kyanite, sillimanite, spinel (Bakhuis Mountains, Surinam); quartz, sillimanite, sapphirine, taaffeite (Casey Bay, Antarctica); cordierite (Chimwala area, Zambia).

Distribution:  
From the Bakhuis Mountains, Surinam. In the Woolanga Bore area, Strangways Range, Northern Territory, Australia. From Casey Bay, Enderby Land, Antarctica. In the Chimwala area, Eastern Province, Zambia.

Name:  
For Surinam, the country of first occurrence.

Type Material:  
Geological & Mining Service, Paramaribo, Surinam, EW 1115.

References:  

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